AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

1. (Currently amended) A compound that comprises:

at least one ~~therapeutic~~ sialidase domain comprising a peptide or protein~~, wherein the therapeutic domain has at least one extracellular~~ having sialidase activity; and

at least one anchoring domain comprising a peptide or protein~~, wherein the anchoring domain~~ that binds to a glycosaminoglycan (GAG) on the surface of the target cell.

2. (Previously presented) The compound of claim 1, wherein the target cell is an epithelial cell or endothelial cell.

3. (Previously presented) The compound of claim 2, wherein the target cell is an epithelial cell.

4. (Canceled)

5. (Canceled)

6. (Previously presented) The compound of claim 3, wherein the anchoring domain can bind heparin or heparan sulfate.

7. (Canceled)

8. (Currently amended) The compound of claim [[7]] 6, wherein the ~~peptide~~ anchoring domain comprises a GAG-binding amino acid sequence of a naturally-occurring protein.

9. (Currently amended) The compound of claim 8, wherein the ~~peptide~~ anchoring domain comprises the GAG-binding amino acid sequence of a mammalian protein.

10. (Currently amended) The compound of claim 9, wherein the ~~peptide~~ anchoring domain comprises the GAG-binding amino acid sequence of a human protein.

11. (Canceled)

12. (Currently amended) The compound of claim 10, wherein the ~~amino acid sequence~~ anchoring domain comprises the GAG-binding amino acid sequence of human platelet factor 4 (SEQ ID NO:2), human interleukin 8 (SEQ ID NO:3), human antithrombin III (SEQ ID NO:4), human apoprotein E (SEQ ID NO:5), human angio-associated migratory protein (SEQ ID NO:6), or human amphiregulin (SEQ ID NO:7).

13. (Previously presented) The compound of claim 1, wherein the pathogen is a virus.

14. (Previously presented) The compound of claim 13, wherein the virus is an influenza virus.

15- 21. (Canceled)

22. (Currently amended) The compound of claim 1, wherein the ~~therapeutic~~ sialidase domain [[is]] comprises a sialidase or an active portion thereof, wherein the active portion retains enzymatic activity and does not comprise the full length enzyme.

23. (Canceled)

24. (Previously presented) The compound of claim 22, wherein the sialidase is at least one viral sialidase, at least one bacterial sialidase, or at least one eukaryotic sialidase.

25-30. (Canceled)

31. (Previously presented) The compound of claim 24, wherein the sialidase is at least one eukaryotic sialidase.

32. (Previously presented) The compound of claim 31, wherein the sialidase is at least one human sialidase.

33. (Previously presented) The compound of claim 32, wherein the human sialidase is the NEU1, NEU3, NEU2, or NEU4 genes.

34. (Previously presented) The compound of claim 33, wherein the sialidase is the NEU2 or NEU4 genes and comprises a sequence of amino acids that is or is substantially homologous to the sequence of amino acids set forth in SEQ ID NO:8 or SEQ ID NO:9.

35-46. (Canceled)

47. (Previously presented) A pharmaceutical formulation comprising the compound of claim 1.

48-49. (Canceled)

50. (Withdrawn) A method for the prevention, prophylaxis or treatment of influenza infection, comprising: applying a therapeutically effective amount of the composition of claim 1 to target cells of a subject.

51-53. (Canceled)

54. (Withdrawn) A method of using a sialidase for the prevention, prophylaxis or treatment of infection by a pathogen, comprising:

applying a therapeutically effective amount of the composition of claim 23 to target cells of a subject.

55. (Withdrawn) The method of claim 54, wherein the sialidase is or is substantially homologous to at least one viral sialidase, at least one bacterial sialidase, or at least one eukaryotic sialidase.

56. (Withdrawn) The method of claim 55, wherein the sialidase is or is substantially homologous to at least one eukaryotic sialidase.

57. (Withdrawn) The method of claim 56, wherein the subject is a human subject and the sialidase is or is substantially homologous to at least one human sialidase.

58. (Withdrawn) The method of claim 57, wherein the sialidase is or is substantially homologous to the NEU2 or NEU4 genes and comprises a sequence of amino acids that is or is substantially homologous to the sequence of amino acids set forth in SEQ ID NO:8 or SEQ ID NO:9.

59-60. (Canceled)

61. (Previously presented) The compound of claim 24, wherein the sialidase is at least one bacterial sialidase.

62. (Previously presented) The compound of claim 61, wherein the bacterial sialidase is selected from the group consisting of *Vibrio cholerae* sialidase, *Clostridium perfringens* sialidase, *Actinomyces viscosus* sialidase and *Micromonospora viridifaciens* sialidase.

63. (Previously presented) The compound of claim 61, comprising only one bacterial sialidase.

64. (Previously presented) The compound of claim 63, wherein the bacterial sialidase is *Actinomyces viscosus* sialidase.

65. (Currently amended) The compound of claim 1, further comprising at least one peptide linker that links the anchoring domain to the sialidase ~~therapeutic~~ domain.

66. (Previously presented) The compound of claim 65, wherein the peptide linker comprises at least one glycine residue.

67. (Previously presented) The compound of claim 65, wherein the peptide linker comprises the sequence (GGGGS)n, where n is a whole number from 1 to 20.

68. (Currently amended) The compound of claim 1, wherein the anchoring domain is N-terminal to a sialidase ~~therapeutic~~ domain.

69. (Currently amended) The compound of claim 1, wherein the anchoring domain is C-terminal to a sialidase ~~therapeutic~~ domain.

70. (Previously presented) The compound of claim 1, comprising at least two anchoring domains.

71. (Currently amended) The compound of claim 70, wherein at least one of the anchoring domains is N-terminal to a sialidase ~~therapeutic~~ domain and at least one of the anchoring domains is C-terminal to a sialidase ~~therapeutic~~ domain.

72. (Previously presented) The pharmaceutical formulation of claim 47 that is formulated as a spray.

73. (Previously presented) The pharmaceutical formulation of claim 47 that is formulated as an inhalant.

74. (Currently amended) The compound of claim 3, wherein the epithelial cell is a respiratory epithelial cell, an adenoid epithelial cell or a bronchial epithelial cell.

75. (Currently amended) The compound of claim 13, wherein the virus is selected from among parainfluenza and respiratory syncytial virus

76. (Previously presented) The pharmaceutical formulation of claim 47 that is formulated as a suspension, a solution for injection or a solution for oral administration.

77. (Previously presented) The pharmaceutical formulation of claim 47 that is formulated as a solution for eye drops.

78. (Previously presented) The pharmaceutical formulation of claim 47 that is formulated as a cream, salve, gel, or ointment.

79. (Previously presented) The pharmaceutical formulation of claim 47 that is formulated as a tablet, capsule or lozenge.

80. (Previously presented) A delivery system, comprising the pharmaceutical formulation of claim 73 and a device selected from among a nebulizer, an atomizer and a dropper bottle.

81. (Canceled)

82. (Withdrawn) The method of claim 55, wherein the sialidase is or is substantially homologous to at least one bacterial sialidase.

83. (Withdrawn) The method of claim 82, wherein the bacterial sialidase is selected from the group consisting of *Vibrio cholerae* sialidase, *Clostridium perfringens* sialidase, *Actinomyces viscosus* sialidase and *Micromonospora viridifaciens* sialidase.

84. (Withdrawn) The method of claim 83, wherein the bacterial sialidase is *Actinomyces viscosus* sialidase.

85. (Withdrawn) The method of claim 54, wherein the applying is by use of a nasal spray.

86. (Withdrawn) The method of claim 54, wherein the applying is by use of an inhaler.

87. (Withdrawn) The method of claim 54, wherein the applying is by oral administration.

88. (Withdrawn) The method of claim 54, wherein the applying is performed from once to four times a day.

89. (Withdrawn) The method of claim 54, wherein the pathogen is a bacterium.

90. (Withdrawn) The method of claim 54, wherein the pathogen is a virus.

91. (Withdrawn) The method of claim 90, wherein the virus is selected from among influenza, parainfluenza and respiratory syncytial virus.

92. (Withdrawn) The method of claim 91, wherein the virus is influenza virus.

93. (Withdrawn) The method of claim 54, wherein the subject is a human subject or an animal subject.

94. (Currently amended) The compound of claim 12, wherein the ~~therapeutic~~ sialidase domain is or is substantially homologous to:

a human sialidase selected from among the NEU1, NEU3, NEU2, or NEU4 genes; or

a bacterial sialidase selected from among *Vibrio cholerae* sialidase, *Clostridium perfringens* sialidase, *Actinomyces viscosus* sialidase and *Micromonospora viridifaciens* sialidase.

95. (Previously presented) The compound of claim 1, comprising an additional domain selected from among proteins, peptides, carbohydrates, fatty acids, lipids, steroids, nucleotides, nucleotide analogues, nucleic acid molecules, nucleic acid analogues, peptide nucleic acid molecules, organic molecules, and polymers.

96. (Previously presented) The compound of claim 95, wherein the additional domain is a purification domain, a domain that improves the solubility or distribution of the compound, a linking domain, a stability-conferring domain, a domain that contributes to the three dimensional structure of the compound, or a domain that increases the size of the compound.

97. (Currently amended) The compound of claim 96, wherein the additional domain is a linking domain that links the ~~therapeutic~~ sialidase and anchoring domains.

98. (Currently amended) The compound of claim 96, wherein the additional domain is a linking domain that links chemical moieties to the compound.

99. (New) A polypeptide comprising at least one sialidase domain having sialidase activity; and

at least one anchoring domain that binds to a glycosaminoglycan (GAG) on the surface of the target cell.

100. (New) The polypeptide of claim 99 further comprising a linking domain that links a sialidase domain to an anchoring domain.

101. (New) The polypeptide of claim 99 wherein the anchoring domain binds heparin or heparan sulfate.

102. (New) The polypeptide of claim 99 wherein the anchoring domain comprises a GAG-binding portion of a naturally-occurring protein.

103. (New) The polypeptide of claim 102 wherein the naturally-occurring protein is a mammalian protein.

104. (New) The polypeptide of claim 102 wherein the naturally-occurring protein is a human protein.

105. (New) The polypeptide of claim 99 wherein the anchoring domain comprises the GAG-binding amino acid sequence of human platelet factor 4 (SEQ ID NO:2), human interleukin 8 (SEQ ID NO:3), human antithrombin III (SEQ ID NO:4), human apoprotein E (SEQ ID NO:5), human angio-associated migratory protein (SEQ ID NO:6), or human amphiregulin (SEQ ID NO:7).

106. (New) The polypeptide of claim 99, wherein the sialidase is at least one viral sialidase, at least one bacterial sialidase, or at least one eukaryotic sialidase.

107. (New) The polypeptide of claim 106, wherein the sialidase is at least one eukaryotic sialidase.

108. (New) The polypeptide of claim 107, wherein the sialidase is at least one human sialidase.

109. (New) The polypeptide of claim 108, wherein the human sialidase is the NEU1, NEU3, NEU2, or NEU4 genes.

110. (New) The polypeptide of claim 99 or claim 105 wherein the sialidase domain comprises all or an enzymatically active portion of a bacterial sialidase selected from among *Vibrio cholerae* sialidase, *Clostridium perfringens* sialidase, *Actinomyces viscosus* sialidase and *Micromonospora viridifaciens* sialidase.